REMARKS/ARGUMENTS

Applicants respectfully request reconsideration of the present application in view of the reasons that follow. Claims 1-13 and 15-32 are pending in this application.

Claim Rejections - 35 USC § 102

On page 2 of the present Office Action, Claims 1-13 and 15-32 were rejected under 35 U.S.C. 102(e) as allegedly being anticipated by U.S. Pat. Pub. No. 2004/0132451 to Butehorn et al. (hereinafter "*Butehorn*"). Applicants respectfully traverse the rejection.

***A. Butehorn* fails to anticipate the claimed "configuring at a network element a first address for an interface of a sub-element."**

Claim 1 states:

> 1. A method for configuring addresses in a packet switched data communication system, the method comprising:
>
> configuring at a network element a first address for an interface of a sub-element of the network element, the network element comprising a control module and the sub-element, wherein the first address is valid in an internal network associated with the network element;
>
> retrieving an identifier of the network element from the control module; and
>
> defining a second address for the interface of the sub-element based on the retrieved identifier of the network element and the first address, wherein the second address is valid in an external network with which the network element communicates.

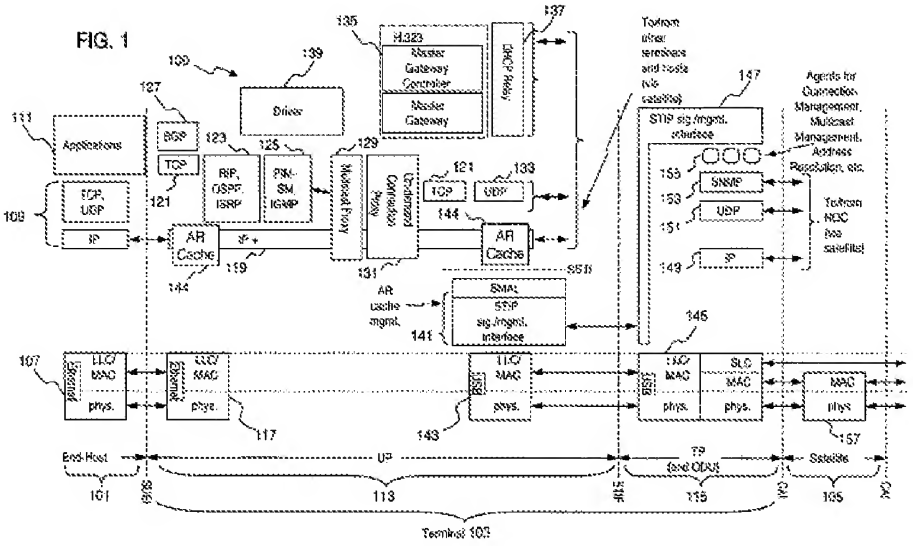
Claims 15 and 29, although different in scope, contain similar elements.

On page 2 of the Office Action, the Examiner states:

> As for claim 1, Butchorn discloses a method for configuring addresses in a packet switched
>
> data communication system (Fig.1), the method comprising: configuring at a network element (Fig.1: Terminal 103) a first address ([0049-0054]: link layer network address) for an interface of a sub-element (Fig.1: LLC/MAC interface 145) of

the network element, the network element comprising a control module (Fig.1: AR 144) and the sub-element (Fig.1: TP 115), wherein the first address is valid in an internal network associated with the network element ([0051-0055]);

Figure 1 is reproduced below:



At the citation, *Butehorn* states:

[0048] The system 100 permits nodes from separate private networks to communicate through the use of translation mechanisms. Specifically, the system 100 utilizes network address translation (NA1) and application layer gateways (ALGs), routing and address resolution are de-coupled. Address resolution is the means by which a network layer (IPv4 or IPv6) address is resolved to a link layer address.

[0049] To better appreciate the present invention, by way of example, the processing of a received packet is as follows. A network device capable of performing routing functionalities (e.g., a router, a satellite terminal (ST), etc.) examines the destination IP address of a received packet to determine if it is the destination. If in fact the network device is the destination device, the network device passes the IP packet "up the stack" to the appropriate application based on the protocol field. If not, the network device decrements a Time to Live (TIL) counter (or Hop Count), discarding the packet if this value equals zero. The network device then examines the destination IP address to

determine if the destination host belongs to the subnets associated with any of the network device's interfaces. If so, the network device performs address resolution of the destination host IP address as described in the step below. If not, the network device determines the "next hop" IP address from the route table, and address resolution of the next hop (or destination host) IP address is performed.

[0050] Address resolution determines the MAC layer address associated with the next hop IP address (e.g., an Ethernet MAC address). The IP datagram is encapsulated with a MAC layer header, and the packet is passed "down the stack" to the router interface as determined by the route table.

[0051] The TP 115 interfaces with the ST's satellite over an air interface. Accordingly, **the TP 115 includes a data interface (e.g., Universal Serial Bus (USB)) 145** that communicates with the data interface 143 of the UP 113. **The TP 115 has a STIP Signaling/Management interface 147**, which interacts with the SMAL/STIP interface 141. In addition, the TP 115 includes an IP layer 149, a UDP layer 151, a SNMP module 153, and agents 155 for connection management, multicast management, address resolution, etc.

[0052] **The satellite 105 supports an access layer 157 to communicate with the corresponding interface 145 of the TP 115.** The system 100 supports mesh point-to-point communications, enabling the exchange of packets among STs via a single hop.

[0053] At times, the terminal 103 may be inactive; e.g., a customer turns the terminal off, equipment malfunction, power failure, etc. When service for an inactive ST is resumed, the terminal 103 is able to signal to a customer premises equipment (CPE), which in this example, is the end-host 101, that routes over the satellite network are reachable.

[0054] The ST 103 possesses the ability to resolve IP addresses to destination ST addresses using, in an exemplary embodiment, local table lookups to the ST 103 or using queries to the NOC. That is, the system 100 supports Address Resolution queries between the terminal 103 and the NOC. According to one embodiment of the present invention, an AR cache 144 is provided for each interface; alternatively, a single AR cache can be used. Address resolution is performed after the router interface is determined and makes use of an AR

> cache 144, which keeps AR entries for resolving the network address. The AR cache 144 is populated by a network protocol associated with the router interface. In addition, static AR entries can also be configured. The exact format of the cache entries depends on the particular implementation; however, a common data structure exists for all AR caches 144. Each entry contains a network address (IPv4 or IPv6), the link layer address, and a timeout value. A customer may specify the cache timeout value via configuration. AR entries may be removed from the cache when the timeout value has elapsed.
>
> [0055] With respect to customer networks that are supported by the system 100, the ST 103 has two link layer interfaces: a satellite network interface and a network interface (e.g., Ethernet). For the Ethernet interface, the ST, in an exemplary embodiment, utilizes ARP (Address Resolution Protocol), according to Internet Engineering Task Force (IETF) RFC 826, for resolving IPv4 addresses and Neighbor Discovery (ND), according to IETF RFC 2461, for resolving IPv6 addresses. Both IETF RFCs 826 and 2461 are incorporated herein by reference in their entireties. The ST 103 supports an AR cache 144 for each of its Ethernet interfaces. The size of this cache is dependent on the number of hosts/routers that are connected to the LAN segment.

(Paragraphs [0048]-[0055]. Emphasis added.)

In the Office Action, the Examiner has equated "a data interface (e.g., Universal Serial Bus (USB)) 145" with "an interface of a sub-element" as claimed. However, nothing within the citation describes "configuring at a network element a first address for an interface of a sub-element" as claimed. The portion of *Butehorn* reproduced above contains all of the discussion of the USB interface found within *Butehorn*. The USB interface found within *Butehorn* is not "a network element" with "a first address" as claimed. Thus, the USB interface cannot be configured with a first address. Nowhere is found any suggestion of "configuring at a network element a first address for an interface of a sub-element." The "data interface (e.g., Universal Serial Bus (USB)) 145" of *Butehorn* is not the same thing as "an interface of a sub-element." Hence, *Butehorn* fails to anticipate at least "configuring at a network element a first address for an interface of a sub-element."

B. *Butehorn* fails to anticipate the claimed "wherein the first address is valid in an internal network associated with the network element."

The Examiner has not specified with particularity what within the citation equates to "the first address" as claimed. The addresses with the citation (Paragraphs [0049]-[0054]) correspond to either a network device capable of performing routing functionalities (Paragraph [0049]) or an ST 103 that possesses the ability to resolve IP addresses to destination ST addresses (Paragraphs [0050]-[0054]). Neither of these are "a first address [that] is valid in an internal network associated with the network element." Nothing within the reference discusses an internal network associated with the network element. Hence, *Butehorn* fails to anticipate at least "wherein the first address is valid in an internal network associated with the network element."

C. *Butehorn* fails to anticipate the claimed "retrieving an identifier of the network element from the control module; and defining a second address for the interface of the sub-element based on the retrieved identifier of the network element and the first address...."

Claim 1 states, in part:

> retrieving an identifier of the network element from the control module; and
>
> defining a second address for the interface of the sub-element based on the retrieved identifier of the network element and the first address, wherein the second address is valid in an external network with which the network element communicates.

Claims 15, although different in scope, contains similar elements.

On page 2 of the Office Action, the Examiner states:

> retrieving an identifier of the network element from the control module ([0055-0058] and Table 1); and defining a second address for the interface of the sub-element based on the retrieved identifier of the network element and the first address (Table -1), wherein the second address is valid in an external network with which the network element communicates ([0060-0063]).

Table 1 is reproduced below.

TABLE 1

Satellite Context ID (SCID)	Next Hop IP Address	Satellite MAC Address	AR Pass/Fail
16 bits	32 bits	32 bits	1 bit

At the citation, *Butehorn* states:

> [0055] With respect to customer networks that are supported by the system 100, the ST 103 has two link layer interfaces: a satellite network interface and a network interface (e.g., Ethernet). For the Ethernet interface, the ST, in an exemplary embodiment, utilizes ARP (Address Resolution Protocol), according to Internet Engineering Task Force (IETF) RFC 826, for resolving IPv4 addresses and Neighbor Discovery (ND), according to IETF RFC 2461, for resolving IPv6 addresses. Both IETF RFCs 826 and 2461 are incorporated herein by reference in their entireties. The ST 103 supports an AR cache 144 for each of its Ethernet interfaces. The size of this cache is dependent on the number of hosts/routers that are connected to the LAN segment.
>
> [0056] The AR cache 144 supporting IPv6 and the Ethernet link may contain only a portion of the IPv6 address. If the Site Local Address identifier (SLA ID)-for Global Unicast addresses-or the Subnet ID are mapped uniquely to an Ethernet interface, then the AR cache 144 entry may use the 64-bit Interface ID or Station ID to identify the network address to be resolved.
>
> [0057] Because the satellite network is a shared resource in which many subnets all use a single communication link, next-hop IP addresses assigned by the customers are not guaranteed to be unique. However, uniqueness is required in order to resolve to the Satellite MAC address. This approach utilizes a "Satellite Context Identifier" (SCID) (which uniquely identifies the customer for a region). This identifier may be used in addition to the next-hop IP address to perform address resolution for the satellite interface.
>
> [0058] As shown in Table 1, an exemplary data structure of the AR cache 144 for the satellite link includes the SCID, the next-hop IP address, and a 32-bit unicast Satellite MAC address as

> shown in Table 2 (below), and an AR pass/fail indicator. The SCID is part of the Route Table entry and is used by the ST 103 when performing address resolution on the satellite interface.

(Paragraphs [0055]-[0058]. Emphasis added.) As shown above, *Butehorn* describes a system with an Ethernet interface that uses Address Resolution Protocol (ARP) for resolving IPv4 addresses and Neighbor Discovery (ND) for resolving IPv6 addresses. An AR cache is supported for each of the system's *Ethernet* interfaces. As noted above, the Examiner previously equated the claimed "interface of a sub-element" to a "a data interface (e.g., Universal Serial Bus (USB)) 145." Applicants note that this data interface is not an Ethernet interface and has no "first address" as claimed. AR cache is inappropriately applied to the "interface of a sub-element" as claimed.

Table 1 is an AR cache which contains ARP and ND information for address resolution over the satellite network of *Butehorn*. Thus, the elements of Table 1 refer to external devices and cannot disclose "a second address" for *the interface of the sub-element* as claimed. Therefore, the system disclosed in *Butehorn* does not "retriev[e] an identifier of the network element from the control module; and defin[e] a second address for the interface of the sub-element based on the retrieved identifier of the network element and the first address" as claimed.

An anticipation rejection cannot be properly maintained where the reference does not disclose all of the recited claim elements. The remaining claims depend from one of Claims 1, 15 and 29. Therefore, Applicants respectfully request withdrawal of the rejection of Claims 1-13 and 15-32 under 35 U.S.C. § 102(e).

* * *

Applicants believe that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by the credit card payment instructions in EFS-Web being incorrect or absent, resulting in a rejected or incorrect credit card transaction, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicants hereby petition for such extension under 37 C.F.R. §1.136 and authorize payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

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